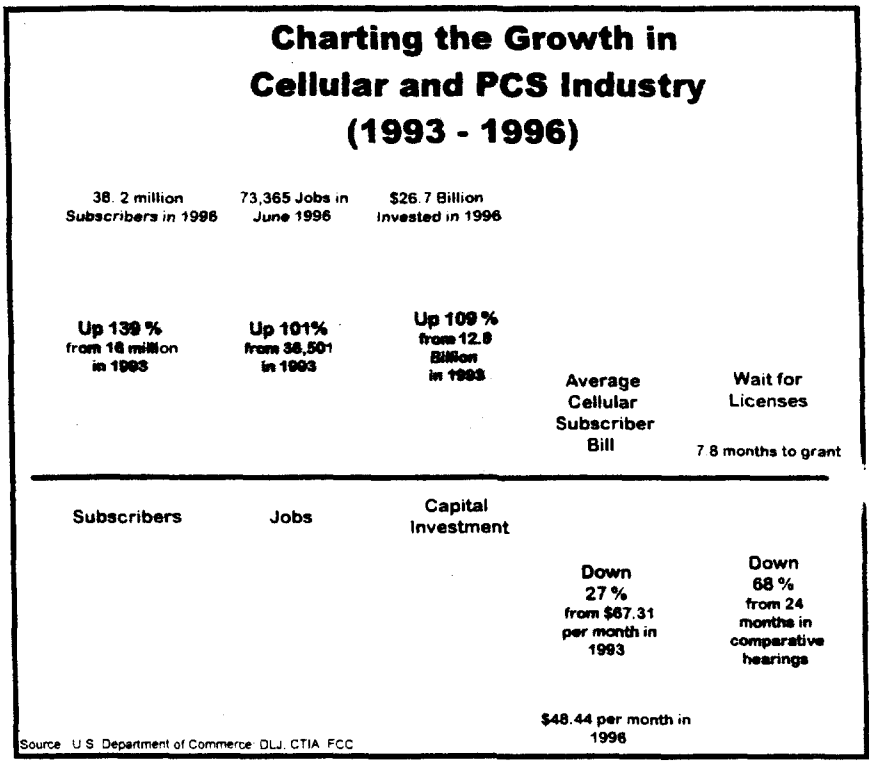

some delays in the process, the broadband PCS auctions in general, and the A and B block auction in particular, have created new broadband PCS competition in an unprecedented short time frame."[35] A recent Yankee Group report identifies over 40 markets that now have three wireless competitors and 10 markets with four competitors. This report notes that pricing in competitive markets with at least one new PCS operator averages 18 percent lower than in markets with no PCS competitors.[36] Competition is also increasing consumers' choice of products by advancing the development of three digital standards.[37] In monetary terms, the most important effect on the economy is not the auction revenues but that these firms are now investing in infrastructure that will permit them to offer services in competition with each other and with other existing telecommunications companies. Wireless investment in capital improvements is expected to be approximately $44 billion over the next five years.[38]

"Charting the Growth in the Cellular and PCS Industry," graphically shows how subscribership and capital investment have all increased in the wireless industry since 1993, while at the same time, the average cellular subscriber bill and the wait for a license has decreased.

FCC auctions have also facilitated the entry of new technologies and services to the wireless marketplace by improving the licensing process and attracting investment in new companies. For example, the Commission recently completed the Digital Audio Radio Service (DARS) auction, which will bring a new

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[35] GTE Comments filed in response to *Public Notice* FCC 97-232, at 15 (August 1, 1997).

[36] *See* Yankee Group, *Yankee Watch Mobile Flash - Competition Begins to Have an Impact on Wireless Pricing* (April 18, 1997).

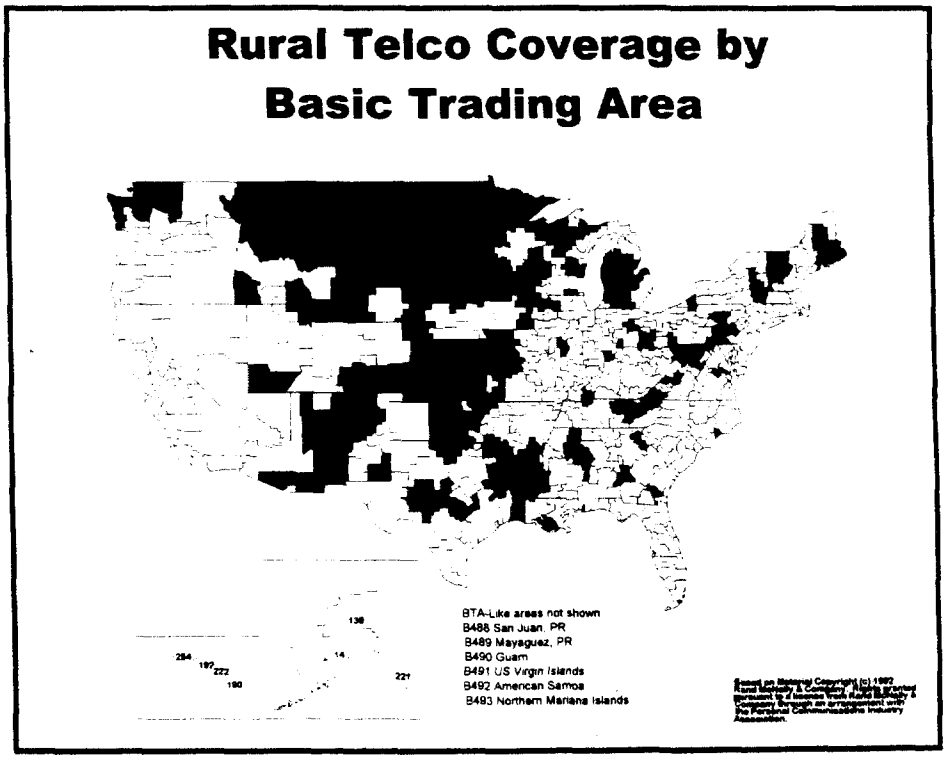
[37] These digital standards are Code Division Multiple Access ("CDMA"), Time Division Multiple Access ("TDMA") and Global System for Mobile Communications ("GSM"). CDMA is a multiplexing standard that supports many calls on the same carrier. Transmission signals are organized into coded packets of information which move among the four clearest available frequencies and then reassemble at the receiving end. TDMA is a multiplexing standard that divides each carrier into three time slots with one subscriber per slot. Transmission signals are broken up into tiny packets of information, sent in timed "bursts," and are reassembled at the receiving end. GSM is the European standard for digital cellular service using slow frequency-hopping and TDMA.

[38] Estimate by Northern Business Information, New York, NY, 1997.

digital radio service to American listeners nationwide. Other service offerings that have received a boost from the introduction of auctions include broadband and narrowband PCS, DBS, Multipoint Distribution Service (MDS), and SMR. These services will offer consumers a range of offerings that will include two-way paging, digital telephony, wireless cable, multichannel video, and more. Future services to be auctioned, such as LMDS, offer other opportunities for video programming, as well as voice and data applications.

D. Getting Telecom Service to Rural and Underserved Areas

The Commission also facilitated the delivery of new services to rural and underserved areas. Auctions have generally provided rural telephone companies with favorable opportunities. To date, rural telephone companies have won about 44 percent of the 123 rural Basic Trading Area (BTA) licenses in the United States.[39] The "Rural Telco Coverage" map illustrates this coverage. In the broadband PCS proceeding, the Commission adopted measures allowing rural telephone companies and others to obtain broadband PCS licenses that are geographically "partitioned" from larger broadband PCS service areas. Partitioning is the reassignment of licenses by geographic areas other than those used by the Commission in the original assignment process. Licensees do not need to meet specified criteria to define a new geographic area. Partitioning flexibility creates an opportunity for a rural telephone company, or any other small business, to obtain Commission licenses usually accessible only to larger companies. A rural telephone company may wish to provide service only in the small geographic area in and around the community it serves. Even though this area may be a small subset of the license area offered in an auction, the auction process normally requires that the company purchase a license for the entire area. This is difficult for small companies that may not possess the financial resources to purchase these larger licenses and may not wish to provide service in most of the service areas. Conversely, large operators may wish to provide service only in more densely populated areas where the return on the required investment is greater. This creates a natural market where the large operators who win licenses



[39] For the purpose of this report, the smallest BTAs by population are considered "rural." Other markets may also include rural areas.

can sell off portions of their service areas to smaller companies.[40] Therefore, the flexibility to partition generates benefits for all parties concerned. The small operator companies, like rural telephone companies, have an opportunity to enter the market. The large operators can generate a return on their investment in a geographic area where they otherwise might not gain any returns. Finally, rural consumers have increased access to modern technologies and the benefits of competition.

In addition to partitioning, the Commission allows entities to "disaggregate" a portion of the spectrum assigned to a broadband PCS licensee. Disaggregation is the assignment of discrete portions, or "blocks," of spectrum licenses to another qualifying entity. The FCC has also adopted or proposed partitioning and disaggregation rules for other auctionable services, such as narrowband PCS, 220 MHz, paging, and LMDS.[41]

Rural Success Stories

Rural access to new telecommunication technologies often lags behind the rest of the United States because of higher infrastructure costs. The FCC auctions granted numerous rural companies licenses to provide innovative services in rural communities.

For example, CFW Communications, a rural telecommunications company providing local telephone service over 34,000 access lines and wireline and wireless cable service to 18,000 homes, has used the Commission's partitioning and disaggregation rules to enlarge its PCS coverage throughout Virginia and West Virginia, increasing its population coverage from 1.5 million to 5 million. CFW is planning to launch PCS service across "a substantial territory" in this area during the last quarter of 1997.

Wireless North is a consortium of rural telephone (and utility) companies from the upper Midwest which owns 16 broadband PCS C, D, E, and F block licenses in 13 BTAs (covering all of Minnesota and parts of North Dakota, Wisconsin, and Iowa). It plans to launch commercial service in several markets by fourth quarter 1997.

These partitioning and disaggregation measures were adopted in part to respond to rural telephone companies' concerns that they effectively would be barred from entering the broadband PCS industry if they were required to bid on an entire BTA or MTA license to obtain the license which covered their

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[40] One commenter suggests that to facilitate the delivery of service to rural areas, the Commission should use smaller license areas. According to RTG, "[i]ncreasing the number of license areas increases the diversity of licensees, as required by Section 309(j), and this in turn encourages the development of new and innovative technologies and service offerings and the creation of niche services and services targeted to rural areas." *See* RTG Comments filed in response to *Public Notice* FCC 97-232, at 11 (August 1, 1997).

[41] *See, e.g.*, Amendment of the Commission's Rules to Establish New Personal Communications Services, Narrowband PCS, GEN Docket No. 90-314, ET Docket No. 92-100, Implementation of Section 309(j) of the Communications Act - Competitive Bidding, Narrowband PCS, PP Docket No. 93-253, *Report and Order and Further Notice of Proposed Rule Making*, FCC 97-140, at ¶¶ 96-99 (rel. April 23, 1997).

wireline service areas.[42] Rural telcos believed that partitioning would allow them to offer in-region service and would encourage them to take advantage of existing infrastructure, thereby speeding service to rural areas. Recently, the Commission extended its broadband PCS partitioning and disaggregation rules to allow entities other than rural telephone companies to obtain partitioned or disaggregated licenses in order to speed service to unserved or underserved areas.[43] *See* "Rural Success Stories."

E. Facilitating Designated Entities' Participation in the Competitive Bidding Process

Congress directed the Commission to give small businesses, rural telephone companies, and businesses owned by members of minority groups and women the chance to participate in the provision of spectrum-based services.[44] This mandate furthers Congressional objectives to expand economic opportunity, promote competition, and facilitate the development and delivery of new and improved telecommunications services to the public.

Section 309(j)(4) identifies a number of means by which the FCC can carry out this mandate, such as "alternative payment schedules and methods of calculation," and "the use of tax certificates, bidding preferences, and other procedures." The Commission has adopted a variety of such measures for different auctioned services. Thus, the Commission has employed installment payments, bidding credits, and, for the auctions of the broadband PCS service, "entrepreneurs' blocks" (*i.e.*, a set-aside of spectrum for bidders not exceeding certain financial thresholds), to facilitate designated entity participation in the provision of spectrum-based services.

In 1994, the FCC adopted provisions for women- and minority-owned businesses. Since 1995, the FCC has largely focused its efforts upon small businesses because, subsequent to the 1993 Budget Act, Congress eliminated the tax certificate program,[45] and the Supreme Court issued two landmark decisions, *Adarand Constructors, Inc. v. Peña* and *United States v. Virginia*. These decisions raised legal uncertainty as to whether the special auction provisions for minorities and women (as initially adopted) could withstand an equal protection constitutional challenge.[46] In the wake of these decisions, the

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[42] *See generally* Implementation of Section 309(j) of the Communications Act - Competitive Bidding, PP Docket No. 93-253, *Fifth Report and Order*, 9 FCC Rcd 5532 (1994).

[43] *See* Geographic Partitioning and Spectrum Disaggregation by Commercial Mobile Radio Licensees, WT Docket No. 96-148, *Report and Order and Further Notice of Proposed Rule Making*, 11 FCC Rcd 21831 (1996).

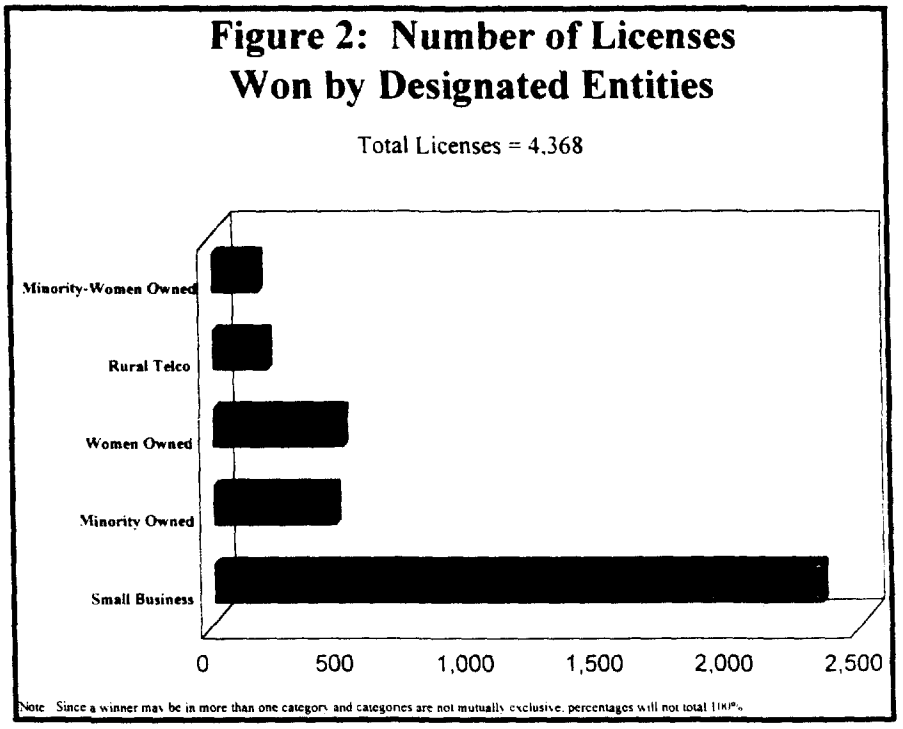
[44] 47 U.S.C. §309(j)(4)(D).

[45] Under the tax certificate program, the Commission issued tax certificates pursuant to the Internal Revenue Code, 26 U.S.C. § 1071: (1) to initial non-controlling investors in minority- and women-owned applicants upon the sale of their interests; and (2) to licensees who assigned or transferred control of their licenses to minority- and/or women-owned entities. The certificates enabled the investors and licensees meeting the criteria to defer the gain realized upon the sale. In early 1995, Congress repealed 26 U.S.C. § 1071. *See* Pub. L. No. 104-7, § 2, 109 Stat. 93, 93-94 (1995).

[46] *See Adarand Constructors, Inc. v. Peña*, 115 S. Ct. 2097 (1995) (constitutionality of all government-imposed racial classifications determined under a "strict scrutiny" standard of review); *United States v. Virginia*, 116 S. Ct. 2264 (1996) (state-imposed gender classification violated constitution because state failed to show "exceedingly persuasive justification" for the program). *See* Appendix B for further analysis of these Supreme

Commission has been examining market barriers facing small businesses in the communications industry and unique barriers faced by minority- and women-owned businesses. This ongoing analysis will help the FCC to develop rules and practices to meet Congress' intent of widespread dissemination of licenses.

The Commission has developed its small business incentives based on eligibility requirements tailored to each service, giving consideration to capital requirements and other characteristics of the particular service. For example, to date, the Commission has provided installment financing in six auctions, including regional narrowband PCS, IVDS, MDS, 900 MHz SMR, and the broadband PCS C and F blocks. In auctions with installment payments, the Commission has also provided favorable interest rates. For example, in the broadband PCS C block auction, all bidders who won licenses were assessed interest ranging from 6.5 to 7 percent.



Following the Congressional directive in Section 309(j) to experiment with different approaches, the Commission varied the level of bidding credits and installment financing terms according to the size of the business applicant to effectively provide opportunities for small businesses, encourage competition, and deploy service to the public in a timely fashion. For instance, the competitive bidding rules for the 900 MHz SMR service provided bidding credits and installment payments for two tiers of small businesses: (1) entities that have average gross revenues of not more than $3 million; and (2) entities that have average gross revenues of not more than $15 million. Businesses with gross revenues of not more than $3 million were entitled to a 15 percent bidding credit, and their installment payment terms included a five-year interest-only payment period, with interest accruing at the Treasury note rate. In contrast, businesses with gross revenues of not more than $15 million were entitled to a 10 percent bidding credit and installment payment terms of two-years interest only, with interest accrued at the Treasury note rate plus an additional 2.5 percent.[47] Of the 1,020 SMR licenses that were auctioned, 250 were awarded to small businesses that elected to use the installment payment plan.

As shown in Figure 2, FCC auctions have assisted small businesses, including those owned by women

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Court decisions and their effect on the designated entity preferences.

[47] *See* 47 C.F.R. §§ 90.810(a), 90.812(a), 90.814(b).

and minorities, in gaining entry to the telecommunications arena. Detailed statistics for designated entity participation are provided in Appendix C. By including special provisions for small business, the Commission has been able to increase opportunities not only for small businesses but also for minority- and women-owned businesses -- because many minority- and women-owned entities are also small businesses.[48]

Throughout the auctions process, the FCC has made extensive efforts to inform small, rural telephone, women-owned, and minority-owned companies about the opportunity to comment on auction rulemakings and participate in auctions. The FCC's Office of Communications Business Opportunities ("OCBO"), in conjunction with the Wireless Telecommunications Bureau, sponsored two national seminars, *Auctions '96* and *Auctions '97*, to inform small businesses about auction opportunities. FCC staff members have spoken to numerous business and community groups, held bidders' seminars before most auctions, and conducted other seminars to provide training on the auction system and to answer questions. The Wireless Bureau's web site has also made auction information readily available.

Installment Payments

The installment payment program has enabled many businesses to pay for licenses who might otherwise not be able to acquire licenses through the auction process. Over 95 percent of the auction winners who were eligible for the installment payment program have participated in it. Installment payments have furthered the Congressional mandate to provide opportunities for designated entities. However, these payments seemingly placed the Commission in the role of being both a regulator and a lender to the wireless industry it licenses.

Unlike a "traditional" lender who has the resources and expertise to determine a borrower's credit worthiness, evaluate operating performance, and develop financial covenants to ensure compliance with loan agreements, the Commission relies on private markets to perform these traditional lending functions. Using upfront payments as a proxy for a bidders' financial viability, the Commission has assumed that if a bidder can raise the upfront payment in the financial markets, that the market recognizes the bidder as financially sound and able to provide services. Moreover, while a "traditional" lender can focus on a few goals such as increasing value for its shareholders, the Commission, as a regulator, has multiple policy goals that sometimes compete with its role as a "lender." The Commission decided not to offer an installment payment program to bidders in two upcoming auctions, 800 MHz SMR and LMDS.[49] The Commission is also reviewing whether to proceed with installment payments in other planned auctions.

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[48] *See generally 1992 Survey of Minority-Owned Business Enterprises*, Agriculture and Financial Statistics Division, Bureau of the Census, U.S. Department of Commerce (December 11, 1995); *1992 Survey of Women-Owned Businesses*, Agriculture and Financial Statistics Division, Bureau of the Census, U.S. Department of Commerce (January 29, 1996).

[49] *See Public Notice*, "Auction of 800 MHz Specialized Mobile Radio Service Licenses," DA 97-1672 (rel. August 6, 1997) *and* Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, To Reallocate the 29.5-30.0 GHz Frequency Band, To Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, CC Docket No. 92-297, *Second Order on Reconsideration*, FCC 97-323 (rel. September 12, 1997).

Default and Bankruptcy Issues

Winning bidders may be found to be in default by either (1) failing to make the required down payments prior to the issuance of a license; or (2) for those eligible for the installment payment program, by failing to make installment payments.

If an auction winner fails to make one of its initial required down payments, it is in default and the Commission can either reauction the licenses in question or offer them to the second highest bidder.[50] With respect to winning bidders who default on installment payments, the Commission's regulations and related financing documents provide for automatic cancellation of the licenses. The Commission has asked Congress to clarify its position vis-à-vis the bankruptcy laws to forestall any litigation that could delay implementation of service to the public and competition in the wireless marketplace.[51]

Overall, only a minimal number of licenses has been retained by the Commission for non-payment of auction downpayments, which are due after the close of an auction. Of the 4,368 licenses the Commission has offered in its fourteen auctions to date, only 3.3 percent have been unassigned due to non-payment. These defaults have primarily occured in two services, IVDS and broadband PCS C block.

Broadband PCS C Block Installment Payment Issues

In early 1997, nine broadband PCS C block licensees participating in the installment payment program indicated that they were having difficulty making their installment payments and requested that the Commission amend the terms of the installment payment program for broadband PCS services.[52] The licensees blamed increased competition and changing market conditions (*i.e.*, decline in financial markets, lower bid prices in the broadband PCS F block and WCS auctions) for their financial difficulties.

In order to fully consider the proposals, on March 31, 1997, the Wireless Bureau suspended installment payments.[53] The Bureau issued a public notice requesting comments on broadband PCS installment

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[50] *See, e.g.*, 47 C.F.R. § 1.2109(c) and § 1.2110(e)(4)(iii).

[51] *See, e.g.*, Letters from the FCC Commissioners (1) to the Honorable Orrin G. Hatch and the Honorable Patrick J. Leahy; and (2) to the Honorable Henry J. Hyde and the Honorable John Conyers, Jr., both dated September 17, 1997; Letter from FCC Chairman Reed E. Hundt to the Honorable Pete Domenici and the Honorable John R. Kasich, dated July 25, 1997; *see also infra* Section VII.

[52] The net high bid for broadband PCS C block licenses roughly averaged $40 per person in the U.S., compared to roughly $15 per person in the U.S. for broadband PCS A and B block licenses.

[53] *See* In the Matter of Installment Payments for PCS Licenses, *Order*, DA 97-649 (rel. March 31, 1997), which suspended broadband PCS C block installment payments. Installment payment from broadband PCS F block licensees (10 MHz PCS entrepreneur block) were subsequently suspended. *See Public Notice*, "FCC Announces Grant of Broadband Personal Communications Services D, E, and F Block Licenses," DA 97-883 (rel. April 28, 1997) at p. 2.

payments,[54] and hosted a public forum attended by over 150 licensees and representatives from the wireless industry and financial markets.[55] In response to the *Installment Payment Public Notice*, over 100 comments and replies to comments were filed, as well as over 200 *ex parte* filings addressing the issues. The requests were varied and included a broad range of proposals such as: changing the installment payment schedule from quarterly to annual payments; allowing licensees to disaggregate spectrum in return for a comparable reduction in debt; prepaying debt based on a net present value formulation; restructuring the debt to reflect the market value of the licenses; and deferring payments.[56]

On September 25, 1997, the Commission approved an option plan for broadband PCS C block licensees, and indicated it would reinstate the installment payment deadline for PCS C and F block licensees as of March 31, 1998.[57] On or before January 15, 1998, licensees must elect either to continue making payments under their original installment payment plan notes or one of the following three options:

> ***(1) Disaggregation***. Any C block licensee may elect to disaggregate one-half of its spectrum (15 MHz of its 30 MHz) for any or all of its licenses and return such spectrum to the Commission for reauction;
>
> ***(2) Amnesty***. Any C block licensee may return all of its licenses, and in return, have its outstanding C block debt forgiven; or
>
> ***(3) Prepayment***. Any C block licensee may prepay for as many of its licenses as it desires at face value using: (a) up to 70 percent of its down payment made on the licenses that it elects to return; (b) any installment payments made; and (c) any new monies raised.

Encouraging Diverse Participation

The Commission continues to encourage the participation of a variety of entrepreneurs in the provision of wireless services, believing that innovation by small businesses will result in a diversity of service

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[54] *See Public Notice*, "Wireless Telecommunications Bureau Seeks Comment on Broadband PCS C and F Block Installment Payment Issues," WT Docket 97-82, DA 97-679 (rel. June 2, 1997) (*Installment Payment Public Notice*).

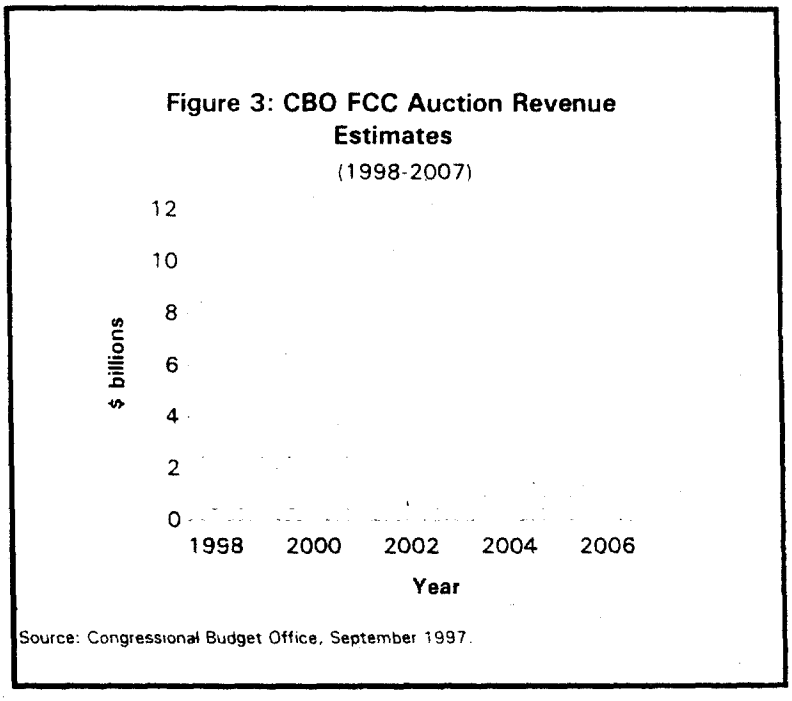
[55] *See Public Notice*, "Commission to Hold Public Forum Regarding Broadband PCS C and F Block Installment Payment Issues," WT Docket 97-82, DA 97-1267 (rel. June 17, 1997); and *Public Notice*, "Agenda for Public Forum Regarding Broadband PCS C and F Block Installment Payment Issues," WT Docket 97-82, DA 97-1356 (rel. June 27, 1997) (inviting parties to address the comments made in the Public Forum in their reply comments to the *Installment Payment Public Notice*).

[56] *See* Letter from Thomas Gutierrez, Esq., *et al.* to Michele C. Farquhar, Esq., Chief, Wireless Telecommunications Bureau (March 13, 1997) ("Gutierrez Letter"). Petitioners included Alpine PCS, Inc.; DCR PCS, Inc.; Eldorado Communications, L.L.C.; Indus, Inc.; KMTel L.L.C.; Mercury PCS, L.L.C.; Microcom Associates; NextWave Communications, Inc.; and R&S PCS, Inc.

[57] Amendment of the Commission's Rules Regarding Installment Payment Financing for C Block Personal Communications Service (PCS) Licensees, WT Docket No. 97-82, *Second Report and Order and Further Notice of Proposed Rule Making* (adopted: September 25, 1997; not released as of the adoption date of this report) (Chairman Hundt affirming and dissenting in part).

offerings that will increase customer choice and promote competition. In that regard, pursuant to Section 257 of the Communications Act, the Commission has initiated a proceeding to consider other ways to improve the access of small businesses, rural telephone, women-, and minority-owned firms to the telecommunications market. The Commission recently issued a report that discusses the numerous measures implemented to benefit small businesses, such as the use of service-specific definitions of small businesses, the outreach efforts by the FCC Office of Public Affairs and OCBO, and the establishment of the Telecommunications Development Fund ("TDF").[58] In 1996, Congress added Section 714 to the Communications Act, creating the TDF to: (1) promote access to capital for small businesses in the telecommunications industry; (2) stimulate new technology development, and promote employment and training; and (3) support universal service and promote delivery of telecommunications services to underserved areas. Auction revenues play a primary role in funding the TDF. Specifically, the TDF receives all interest accrued by upfront payments, from the date of deposit until up to 45 days following conclusion of the auction for which the upfront payment was submitted. The TDF's current funding level is $21.6 million.[59]

The Commission is also planning a comprehensive study to further examine the role of small businesses and businesses owned by women and minorities in the telecommunications industry and the impact of the Commission's current policies on access to the industry for such businesses. This study will assist the Commission in determining whether there are constitutionally sound bases for adopting licensing provisions to promote opportunities for women and minorities for future auctions.



F. Auction Results and Projections

As discussed above, the auctions successfully met the statutory goals mandated in Section 309(j) of the Communications Act. To date, the FCC has collected in excess of $12 billion in revenues.[60] Revenue derived from future auctions will likely be affected by various factors, including the nature and amount of spectrum auctioned, service-specific Commission rules, market conditions, and auction methodology. Determining the value of spectrum in advance of an auction

[58] *See* Section 257 Proceeding to Identify and Eliminate Market Entry Barriers for Small Businesses, GN Docket No. 96-113, *Report*, FCC 97-164 (rel. May 8, 1997).

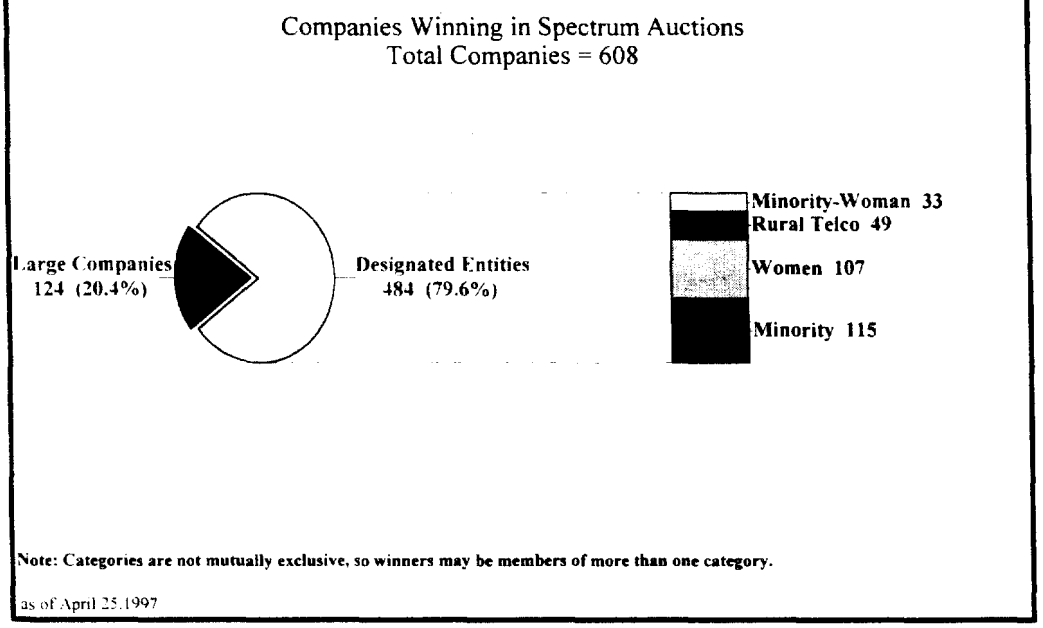
[59] *See* 47 U.S.C. § 309(j)(8)(C) & 47 U.S.C. § 614.

[60] This figure represents monies received from auction winners as of August 31, 1997, many of whom are paying installments over the term of their licenses (generally 10 years).

is very difficult. The value of spectrum depends on a number of factors, including its location, technical characteristics, the amount of spectrum, the geographic area covered, the availability of technology suitable for a given band, the amount of spectrum already available for provision of similar services, the number of incumbents presently occupying the spectrum, and whether incumbents, if any, will remain licensed in that spectrum or will be relocated to other spectrum.

The Commission has not made its own estimates of the value of auctionable spectrum in the past.[61] Moreover, the Commission's statutory authority continues to instruct that the agency not base spectrum allocation decisions "solely or predominantly" on the expectation of revenues that auctions may generate.[62] The Commission's primary mission in conducting auctions is promoting competition by awarding licenses rapidly to those who value them most highly.

Figure 4
Designated Entity Participation in Spectrum Auctions



Future auctions being planned include those for licenses to provide LMDS, paging, 800 MHz SMR, 220 MHz services, and additional narrowband PCS. The CBO estimates that auction of this spectrum alone could raise close to $16 billion. Moreover, in the recent BBA of 1997, Congress has also identified additional spectrum for auction.[63] Revenues from these future auctions could be as high as $25 billion between 1998 and 2007.[64] CBO projections for estimated future auctions revenues are shown in Figure 3.

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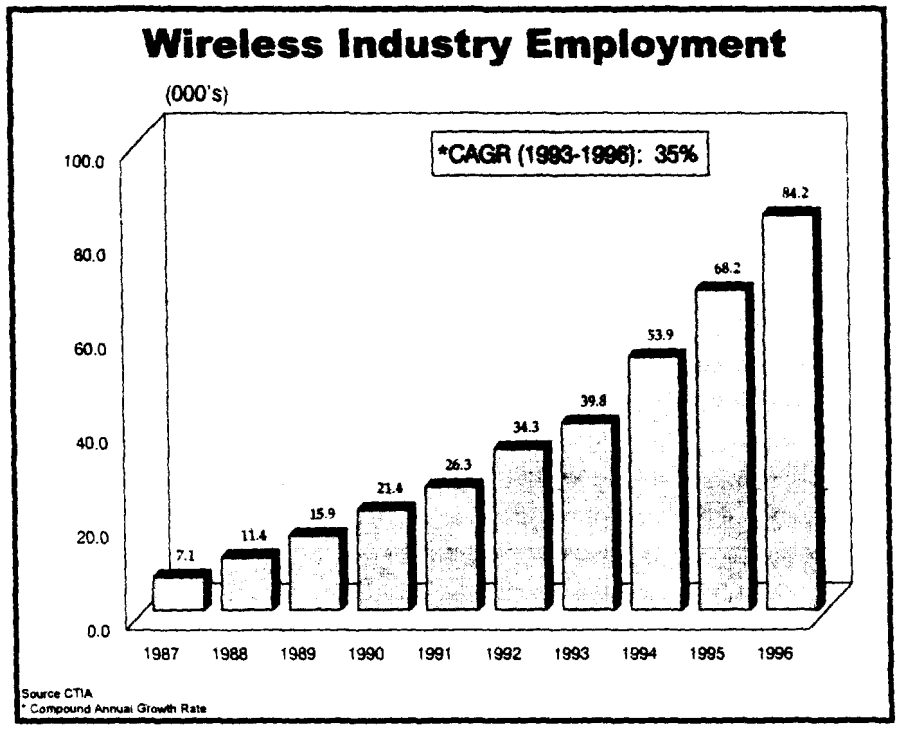
[61] *See* Letters from FCC Chairman Reed E. Hundt to the Honorable John McCain, dated February 26, 1997 and the Honorable John D. Dingell, dated July 8, 1997. These letters point out that the FCC does not ordinarily determine the value of spectrum in advance of an auction.

[62] *See* 47 U.S.C. § 309(j)(7).

[63] *See infra* Table 2.

[64] *See The Economic and Budget Outlook: An Update*, Congressional Budget Office, Congress of the United States (September 1997), Table 11; letter from June E. O'Neill, Director, Congressional Budget Office, to the Honorable Franklin D. Raines, Director, Office of Management and Budget, dated August 12, 1997.

When we examine the numerical results of the auction program, it is clear that the Congressional mandate to disseminate licenses among a wide variety of applicants including small businesses, rural telephone companies, and businesses owned by women and minorities has been successfully met. These licenses have also been distributed across wide geographic areas.



The number of licenses won in the fourteen FCC auctions by designated entities was significant. Small businesses, rural, as well as minority- and women-owned businesses, have benefited from the FCC competitive bidding procedures. Of the 4,368 licenses awarded thus far by auctions, 53 percent were awarded to small businesses; 11 percent to minority-owned businesses; 11 percent to women-owned businesses; 4 percent to minority women-owned businesses; and 5 percent to rural telephone companies. (Note that a licensee may fall into more than one category.) Similarly, if we examine the total number of companies who won spectrum licenses, we find that almost 80 percent of the 608 winners qualified as designated entities, as shown in Figure 4.

Finally, the success of the auction program has had both national and global impact. These auctions have increased competition, which in turn may have contributed to growth in wireless industry employment in U.S. markets. As shown in the accompanying chart entitled "Wireless Industry Employment," the compound annual growth in wireless industry employment has increased by 35 percent between 1993 and 1996. The success of FCC auctions have encouraged other countries to employ electronic competitive bidding methodologies to assign licenses. These global competitive markets could potentially reduce rates on wireless communications worldwide.

VI. Looking Ahead

While the use of competitive bidding represents a significant improvement over past licensing approaches, the Commission is committed to making continual improvements to the overall auction program. For example, the Commission recommends a number of possible changes in its auction design and procedures that could improve its operations in a pending rulemaking proceeding that examines its general auction rules set forth in Part 1 of Chapter 47 of the Code of Federal Regulations.[65] The Commission is also evaluating the recently enacted BBA of 1997 to determine that legislation's effect on the auctions process and on the implementation of its requirements.

The auction program has been evolutionary in nature. The Commission has gained valuable experience with each auction and continually uses this experience to improve the auction process. We expect to continue improving and refining our auction process as we conduct more auctions in the future. One area where we believe that past experience has demonstrated a need for modifications is in the area of installment payments. While the FCC's installment payment program has been successful in addressing barriers to capital faced by small businesses seeking to provide wireless services, it has also placed the FCC in the difficult role of being both a lender and a regulator. Administration of the installment payment program has also placed an overwhelming burden on the FCC's staff and resources. The Commission is dedicated to resolving the complicated issues that accompany the installment program, without jeopardizing the ability of small businesses to participate meaningfully in the auction program.

Another issue facing the FCC is the inherent tension between use of the spectrum auction as a revenue-raising measure and its use as an efficient means of assigning licenses. For example, Congress recently required the auction of 30 MHz of WCS spectrum in a short time frame for the purpose of raising revenue for the Federal budget.[66] The short statutory time limits forced the FCC to truncate its processes in a manner that led to some uncertainty about the spectrum and may have deterred bidders from participating in the auction. Further, technical limitations on the use of the WCS spectrum sharply curtailed interest in this band. Ultimately, the auction raised far less than was "scored" for budget purposes.[67] Nevertheless, WCS spectrum can be used for many promising applications (*e.g.*, Internet access, wireless cable, low power telephony). As a result, consumers will soon benefit from the deployment of this new service -- regardless of the amount of revenue raised by any auction. In fact, winning bidders from WCS licenses are already investing in the development of new technologies and formulating ideas for the efficient use of this spectrum band.[68]

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[65] *See Part 1 Order, supra* fn. 6.

[66] *See* Omnibus Consolidated Appropriations Act, Pub. L. No. 104-208, § 3001, 110 Stat. 3009 (1996).

[67] *See* letter from Michele C. Farquhar, Chief, Wireless Telecommunications Bureau, to the Honorable Thomas J. Bliley, Jr., dated February 5, 1997 (predicting this outcome).

[68] *See Wireless Companies With New WCS Licenses Set Coordinating Effort*, Communications Daily, August 13, 1997, p. 4.

In addition, a total of 234 MHz of spectrum may be subject to auction pursuant to the BBA of 1997.[69] The Commission will be moving ahead to allocate and assign much of this spectrum by the year 2002. Congress also acted to extend the Commission's auction authority and broaden its application.[70] In addition, the Commission has a number of other recommended changes in the auction program which are discussed below.

A. Proposed Auction Changes

In the BBA of 1997, Congress calls for the FCC to experiment with "combinatorial bidding." A brief explanation of this type of auction bidding methodology is outlined below.

Combinatorial Bidding

Combinatorial bidding, also known as "packaged bidding," allows bidders to place single bids for groups of licenses. For example, in one type of combinatorial auction, bidder A could place a bid of $100,000 for licenses 1, 2 and 4, while bidder B places a bid of $500,000 for licenses 2, 3 and 5. The computer system then calculates the revenue maximizing solution and awards the high bids for that round to the appropriate package(s).

Combinatorial bidding may have advantages over other auction designs when two characteristics are present in the goods being auctioned. First, there must be strong synergies among items. In the FCC auctions, strong synergies exist when licenses are worth more to some bidders as a package than individually. Second, bidders must have strong and divergent preferences about how best to use the spectrum. For example, a large company's business plan may not be viable unless awarded a nationwide service area, whereas other users may desire the same spectrum for local land mobile or fixed services but need only a smaller service area.

In its *Second Report and Order* on competitive bidding procedures, the Commission recognized that there may be benefits associated with the use of combinatorial bidding.[71] Since that time, the Commission has continued to look for an appropriate opportunity to implement this methodology.

The Commission recently awarded a research and development contract to a consultant to provide theoretical and applied combinatorial bidding approaches where licenses exhibit strong synergies and bidders have overlapping preferences (*i.e.*, prefer different packages of licenses). The FCC goal is to address concerns and investigate ways to limit any negative effects on the auction process, including the Commission's fulfillment of the objectives of Section 309(j) of the Communications Act. The Commission must also decide upon the right spectrum for this assignment method.

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[69] *See infra* Table 2.

[70] *See BBA of 1997* § 3002(a)(1)(E), 111 Stat. at 259 (extending the Commission's auction authority through September 30, 2007).

[71] *See Competitive Bidding Second Report and Order*, 9 FCC Rcd 2365-2366.

Minimum Opening Bids and Reserve Prices

In the BBA of 1997, Congress specifically requires the Commission to establish minimum opening bids and reasonable reserve prices in all future auctions, unless the Commission determines that such an assessment is not in the public interest. Since the statute's enactment, the Commission has taken immediate steps to prescribe minimum opening bid and reserve price methodology for the 800 MHz SMR auction scheduled to begin October 28, 1997, and is currently working on similar methodology for subsequent auctions. To date, the Commission has used minimum opening bids in two services: DARS and DBS. Both of these auctions were for satellite services, where valuations were fairly straightforward to establish. Valuations normally entails some speculation, which the Commission generally tries to avoid. The challenge in the future will be to establish minimum opening bids or reserve prices at levels sufficient to ensure that the public receive compensation while not deterring participation in the auction.

Other Changes

In addition to legislative changes and initiatives, given the Commission's interest in improving its bidding process, it is presently seeking comment on a number of competitive bidding issues.[72] Some of these proposals include:

- **Creation of a Centralized Ownership Database:** Currently, the Commission's ownership disclosure rules require the following: (1) auction applicants to file specific ownership information prior to each auction; and (2) auction winners to file specific ownership information when applying for the license. To streamline these application procedures at both stages, the Commission is considering creation of a central database of licensee and bidder data, which would allow auction participants to file ownership information only once and update that information as necessary for subsequent auctions.

- **Implementing "Real Time" Bidding:** To speed our auctions without sacrificing the economic efficiency of assignment, the Commission is considering "real time" bidding changes to its auction format. An open, continuous bidding round, in which bidders would know when their bid has been exceeded and would be free to bid again, may improve upon our current design by giving bidders immediate information during the round. The current design only allows a bidder to make a single bid per license in each round and requires bidders to wait until the end of each round to determine their status.

- **Permitting Pre-grant Construction:** To further the statutory objective of the rapid deployment of new technologies, products, and services for the benefit of the public, the Commission is considering permitting all auction winners to begin construction of their systems, at their own risk, upon issuance of a public notice announcing auction winners before they are officially licensed to provide service.

The FCC is also considering other options to further increase the speed and efficiency of the auction system, including market specific bid increments and simplified bidding techniques. Market specific bid

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[72] *See Part 1 Order, supra* fn 6.

increments tailor the bid increment for each license individually, and can decrease the time it takes for licenses to reach their final value. Simplified bidding techniques are also being explored as a way to speed the auction process. Bidding formats such as a "yes/no" systems, where bidders simply "click" on the appropriate box to place a bid at the minimum acceptable bid amount, may help to reduce the time it takes to place bids.

B. Future Auction Activity

In the BBA of 1997, Congress not only extended the FCC's auction authority but also identified radio spectrum for future auctions. Table 2 provides a concise overview of these future auctions.

Table 2
AUCTIONS TO BE SCHEDULED
PER BALANCED BUDGET ACT OF 1997

BAND	RANGE (MHz)	AMOUNT (MHz)	BBA of 1997 §	AUCTION ACTION
Gov't Fixed (& Mobile)	1710-1755	45	§3002(b)	Begin auction after 1/1/01
Emerging Technology Band	2110-2150	40	§3002(c)1D	Complete actions to assign by 9/30/02
Broadcast Auxiliary; MSS	1990-2110	15	§3002(c)1E	Complete actions to assign by 9/30/02
Gov't Spectrum	To Be Determined	20	§3002(e)3A	Complete actions to assign by 9/30/02
Recaptured Broadcast Channels (from 2-59)	698-746 AND (54-72,76-88 OR 668-698)	78	§3003	Complete assignment & report revenues by 9/30/02
Broadcast Channels 60-69	746-806	36	§3004	Allocate by 1/1/98; begin auction after 1/1/01
TOTAL		**234**		

VII. Recommended Statutory Changes

The FCC has gained valuable experience in the fourteen auctions it has conducted to date. While the auctions program has been a success, the auctions process would benefit in a number of areas from legislative action that would assist the Commission in overcoming the problems it has encountered. In particular, the Commission desires legislation to ensure the Commission's ability to rapidly reclaim licenses for reauction once a licensee has filed for bankruptcy. Other areas for legislative action include changes to eliminate regulatory "red tape" that impairs the program or results in unwanted administrative or legal uncertainty. These legislative changes are outlined below.

(1) The Commission recommends that Congress clarify that FCC licensees who default on their installment payments may not use bankruptcy litigation to refuse to relinquish their spectrum licenses for reauction.

A number of FCC licensees have argued that, even if they default on their installment payments, the licenses do not automatically cancel and the Commission cannot reauction them while bankruptcy litigation is ongoing. The Commission believes this is an incorrect reading of the statutory scheme. Specifically, the Commission believes that FCC licenses are not "property" subject to the bankruptcy code. Moreover, it is the Commission's view that FCC licenses are granted subject to conditions such as full payment of net winning bids and, should those conditions not be met, the licenses automatically revert to the FCC. However, in the absence of clarifying legislation, there is a risk that valuable spectrum licenses will be tied up in litigation, delaying the return and reauction of the licenses, the introduction of new services and competition, and the collection of revenues.

The Commission does not believe that Congress intended to allow licensees to use Chapter 11 or Chapter 7 bankruptcy litigation as a haven to horde valuable FCC licenses. Therefore, to assist the Commission in rapidly reassigning spectrum licenses to parties that will put them to the most efficient use, the Commission strongly urges Congress to adopt legislation that would clarify that provisions of the bankruptcy code (1) are not applicable to any FCC license for which a payment obligation is owed; (2) do not relieve any licensee from payment obligations; and (3) do not affect the Commission's authority to revoke, cancel, transfer or assign such licenses.

(2) The Commission recommends that Congress grant the Commission explicit statutory authority to manage its installment payment portfolio in a flexible manner comparable to other government agencies that lend funds to regulated entities.

The installment payment program implemented pursuant to Section 309(j)(4)(A) places the Commission in the conflicting roles as both "lender" and "regulator," presumably subject to the Federal Claims Collections Standards ("FCCS").[73] Under these provisions, it is not clear whether the Commission may compromise, modify, settle, or waive claims for license payment in whole or in part, privatize auction debt, or transfer the banking functions to another agency or entity. Government agencies that perform

[73] 4 C.F.R. §§ 101-105.

similar "lending" functions to regulated entities, such as the Department of Agriculture and the Small Business Administration, have explicit statutory authority to flexibly service their payment programs outside the purview of the FCCS, and the Commission suggests that comparable provisions be added to Section 309(j)(8).

(3) The Commission recommends that Congress exempt all auction rulemakings from the regulatory requirements of the Contract With American Advancement Act ("CWAAA").

The CWAAA amended the Administrative Procedures Act to include certain administrative requirements that create difficulties in timely auction deployment, and provide parties a means of frivolously disrupting the timing of specific auctions. For example, the CWAAA (1) allots a 60-day Congressional review period before "major" rules are allowed to become effective;[74] (2) requires a detailed final regulatory flexibility analyses for promulgated rules; and (3) affords immediate judicial review of FCC compliance with the regulatory flexibility requirements. Congress recently granted some flexibility to the FCC with these provisions in the Telecommunications Act of 1996, due to the time sensitive nature of the rules promulgated thereunder.[75] Congress also exempted the auction of 2.3 GHz (WCS) from these requirements because it was recognized that these provisions do unduly delay our process.[76] Auctions are highly time sensitive. Auction rules must be effective before application for an auction may be accepted; a reduction in the time period required before rules become effective is important when the industry believes that it is critical that a particular auction be conducted quickly, when Congressionally mandated deadlines must be met, or when the Commission revises auction rules just before an auction. Therefore, the Commission suggests that Congress grant a global exemption from the CWAAA requirement for the auctions program.

(4) The Commission recommends that Congress exempt auction contracts from certain provisions of the Federal Acquisitions Regulations ("FAR").

Given the objective of Section 309(j)(3)(A) to ensure rapid deployment of service to the public through the auction program, the FCC often finds itself understaffed for operations during any given auction, particularly since the need for extra staffing varies with the auction schedule. Some flexibility in hiring and retaining contractors under the FAR would greatly increase the efficiency of the auctions program. For example, the FAR prohibits the Commission from entering into so-called "personal services contracts," unless otherwise specifically authorized by statute to do so.[77] The purpose of this regulation is to avoid the use of contract personnel in a manner that undermines government personnel caps.

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[74] "Major" rules are those that result in, or are likely to result in: (1) an annual effect on the economy of $100,000,000 or more; (2) a major increase in costs or prices for consumers, industries, government agencies, or geographic regions; or (3) significant adverse affects on competition, employment, investment, productivity, innovation, or on the ability of the United States-based enterprises to compete with foreign-based enterprises in domestic and export markets. *See* 5 U.S.C. § 804(2). All other rules are classified as "non-major," which require only a 30 day review period prior to going into effect.

[75] *See* Pub. L. No. 104-121, § 251, 110 Stat. 847, 873 (1996) (codifying 5 U.S.C. § 804).

[76] *See* Omnibus Consolidated Appropriations Act § 3001(c).

[77] *See* 48 C.F.R. § 37.104(b).

Unfortunately, this regulation results in layers of supervisory "red tape" that are often inefficient, considering the tight deadlines associated with the auction process. Some government agencies such as the Federal Aviation Administration are authorized to implement an acquisition management system that addresses the unique needs of that agency, notwithstanding the provisions of Federal acquisition law such as the FAR.[78] This greater flexibility would benefit the FCC for the auctions program as well.

(5) The Commission recommends that the statute of limitations for forfeiture proceedings against non-broadcast licensees be modified from one to three years.

The Communications Act gives the Commission broad authority to impose monetary forfeitures of up to one million dollars upon non-broadcast licensees for willful or repeated violations of the Communications Act or a Commission rule or order. Specifically, the Commission must initiate a proceeding for the imposition of a forfeiture penalty by a written "Notice of Apparent Liability for Forfeiture" ("NALF") within one year from the date the act or omission that forms the basis of the alleged violation occurs. Forfeiture actions outside the one year statute of limitations are expressly prohibited.[79] This statute of limitations with regard to non-broadcast licensees can hamper the Commission's ability to preserve the integrity of the auctions process, or to effectively enforce the Communications Act and its implementing regulations, and in many instances, if a forfeiture cannot be imposed, the Commission does not have an appropriate remedy for violations of the Communications Act or the Commission's rules.

For example, Section 1.2105(c) of the Commission's rules prohibits collusion between auction bidders. When such collusion consists of private communications between bidders, it is difficult for the Commission or for other bidders to learn of the collusion. Once the collusive conduct is revealed, the Commission must investigate the matter and prepare and release a NALF within one year after the collusion act occurs. Because of delays inherent in this process, which may also include further correspondence with the alleged colluders, FCC staff often find that the one-year statute of limitations for issuing a NALF has elapsed before it can make a final decision as to whether and to what extent enforcement action is warranted. The Commission therefore recommends that the statute of limitations be modified from one to three years, which will provide additional time for the Commission to make that decision.

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[78] *See, e.g.*, Department of Transportation and Related Agencies Appropriations Act, Pub. L. No. 104-50, § 348, 109 Stat. 436 (1995).

[79] *See* 47 U.S.C. § 503(b)(6)(B); *see also* 47 C.F.R. § 1.80(c).

VIII. Conclusion

By adding Section 309(j) to the Communications Act of 1934, Congress ushered the telecommunications industry into a new era -- an era in which competition, economic efficiency and innovation have become the "watch" words for both the public and private telecommunications sectors.

The FCC auctions program has been a success for the American people. The FCC's new auction design and automated system have won awards at home, and have been studied, licensed or copied worldwide. In most cases, experience has shown that FCC auctions have increased competition, provided opportunities for new entrants and benefited consumers.

When Congress authorized the FCC to use competitive bidding, it not only charged the Commission to promote the development and rapid deployment of new technologies, products and services for the benefit of the public but also required the Commission to facilitate opportunity and competition by avoiding excessive concentration of licenses and by disseminating licenses among a wide variety of applicants, including small businesses, rural telephone companies, and businesses owned by members of women and minority groups. Clearly, all evidence shows that the FCC has succeeded in disseminating licenses to a wide variety of recipients.

The FCC can attribute its overall auction success in meeting these goals, in part, to its willingness to improve and change auction mechanisms on an ongoing basis. As with any new program, there are issues that need to be refined. Ultimately, however, the benefits of FCC auctions outweigh any pitfalls. For the future, the Commission will continue to address problems, improve its process where necessary, and implement new auctions.

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton

William F. Caton
Acting Secretary

APPENDIX A

Comments filed in WT Docket No. 97-150

1. American Mobile Telecommunications Association, Inc. (AMTA)
2. Automated Credit Exchange (ACE)
3. Bell Atlantic and NYNEX
4. East Ascension Telephone Company, Inc. (Eatel)
5. GE American Communications, Inc. (GE American)
6. GTE Service Corporation (GTE)
7. Industrial Telecommunications Association, Inc. (ITA)
8. Iridium, LLC
9. Millimeter Wave Carrier Association, Inc. (Millimeter)
10. Motorola, Inc.
11. Nextel Communications, Inc. (Nextel)
12. Northeast Florida Telephone Company and Ringgold Telephone Company (NFTC/RTC)
13. The Rural Telecommunications Group (RTG)
14. Satellite Industry Association (SIA)
15. Small Business in Telecommunications (SBT)
16. Southern Communications Services, Inc. (Southern)
17. Telecommunications Industry Association (TIA)
18. UTC, The Telecommunications Association (UTC)

APPENDIX B

Recent Supreme Court Cases on Programs Which Take Race or Gender into Account

The Commission's designated entity rules for the first three services scheduled for auction included provisions specifically tailored to businesses owned by members of minority groups and women. For example, bidding credits were made available only to businesses owned by minorities and women in auctions held for narrowband PCS and IVDS licenses, and enhanced bidding credits were proposed for the use of businesses owned by minorities and women otherwise eligible to participate in the broadband PCS C and F block auctions. The Commission promulgated these initial designated entity rules in 1994 with the expectation that the provisions for minorities and women would withstand an equal protection constitutional challenge under the "intermediate scrutiny" standard of review articulated in *Metro Broadcasting, Inc. v. FCC*, 497 U.S. 547 (1990). *See Competitive Bidding Second Report and Order*, 9 FCC Rcd at 2398-400. Under intermediate scrutiny, such measures are constitutionally permissible to the extent that they serve important governmental objectives and are substantially related to the achievement of those objectives.

In June 1995, the Supreme Court decided *Adarand Constructors, Inc. v. Peña*, 115 S. Ct. 2097 (1995). In *Adarand*, the Supreme Court specifically overruled the *Metro Broadcasting* case to the extent that it was inconsistent with *Adarand*'s holding that any federal program that makes distinctions on the basis of race must satisfy the "strict scrutiny" standard of judicial review. Under strict scrutiny, measures must serve a compelling governmental interest and must be narrowly tailored to serve that interest. The Commission is therefore examining the evidence to determine whether it would meet the Court's standard under *Adarand*.

Subsequent to *Adarand*, the Supreme Court decided *United States v. Virginia*, 116 S. Ct. 2264 (1996) (*VMI*), which sharpened the intermediate scrutiny standard for classifications regarding gender. In *VMI*, the Supreme Court held that a state program containing gender classification must demonstrate an "exceedingly persuasive justification" in order to withstand constitutional scrutiny. There is uncertainty as to whether the exceedingly persuasive justification test is a form of intermediate scrutiny that is heightened from the standard the Supreme Court used in cases such as *Metro Broadcasting*, *see, e.g.*, *VMI*, 116 S. Ct. at 2293-96 (Scalia, J., dissenting), and whether the exceedingly persuasive justification test would apply to Federal as well as state gender-based programs. *See, e.g.*, Implementation of Section 309(j) of the Communications Act – Competitive Bidding, *Tenth Report and Order*, 11 FCC Rcd 19974, 19977-78 (1996). The Commission is examining the evidence in the industry to determine whether provisions taking gender into account would meet the Court's *VMI* standard.

In light of the Supreme Court's decisions, the Commission considered the statutory obligations imposed by Section 309(j)(3): (1) to award spectrum licenses expeditiously and to promote the rapid deployment of new services to the public without judicial delays; as well as (2) to disseminate licenses among a wide variety of applicants, including designated entities. Bearing these factors in mind, the Commission balanced these goals in favor of avoiding uncertainty and delay that would likely result from legal challenges to the special provisions for minority- and women-owned businesses, and amended its rules then in effect to eliminate provisions for minority-and women-owned businesses. Furthermore, for auctions held since *Adarand* and *VMI*, all of the Commission's designated entity provisions have been race- and gender-neutral, specifically targeting various tiers of small businesses.

APPENDIX C:

AUCTIONS SUMMARY DATA

Statistics on Designated Entity Winners

	Total		Small		Not Small		Minority (1)		Women (1)		Rural (1)		Minority & Women (1)	
	Qualified Bidders	Total Lic.	Winning Bidders	Lic. Won	Winning Bidders	Lic. Won	Winning Bidders	Lic. Won	Winning Bidders	Lic. Won	Winning Bidders	Lic. Won	Winning Bidders	Lic. Won
Nationwide Narrowband PCS	7	11	0	0	7	11	0	0	0	0	0	0	0	0
IVDS	178	594	164	557	14	37	63	195	70	282	0	0	16	55
Regional Narrowband PCS	9	30	4	11	5	19	2	6	3	10	0	0	1	5
A/B Block PCS	21	102	0	0	21	102	0	0	1	1	0	0	0	0
C Block PCS (2)	90	493	90	493	0	0	24	151	15	97	11	28	8	62
MDS	67	493	61	381	6	112	5	10	4	19	3	5	2	4
SMR	80	1,020	60	263	20	757	4	31	5	35	0	0	2	27
110 DBS	1	1	0	0	1	1	0	0	0	0	0	0	0	0
148 DBS	1	1	0	0	1	1	0	0	0	0	0	0	0	0
D, E, F Block PCS (3)	125	1,479	93	598	32	874	16	70	8	50	32	167	4	19
Cellular Unserved	10	14	4	5	6	9	0	0	1	1	0	0	0	0
WCS	17	128	8	32	9	94	1	3	0	0	3	5	0	0
DARS	2	2	0	0	2	2	0	0	0	0	0	0	0	0
Total (4)	608	4,368	484	2340	124	2019	115	466	107	495	49	205	33	172

(1) Totals for Minority, Women, Rural, and Minority-Women are not mutually exclusive.

(2) The C Block PCS totals includes two separate auctions.

(3) D, E, & F Block Auction had "Small" and "Very Small" Bidding Credits (Both were combined into the "Small" category).

(4) At the end of the D, E, F Block PCS and WCS auctions, the FCC owned 9 combined licenses

Broadband PCS Auction Winners

		Geographic Lic. Scheme Spectrum per License Block	MTA 30 A		MTA 30 B		BTA 30 C		BTA 10 D		BTA 10 E		BTA 10 F	
MTA	BTA	Market Name	Population	Winning Bidder	Net Bid (thous.)	Winning Bidder	Net Bid (thous.)	Winning Bidder	Net Bid (thous.)	Winning Bidder	Net Bid (thous.)	Winning Bidder	Net Bid (thous.)	Winning Bidder	Net Bid (thous.)
1	7	Albany, NY	1,028,615					NextWave Personal	$34,022	AT&T Wireless PCS I	$1,134	ACC PCS, Inc	$3,948	Vtel Wireless, Inc	$3,809
1	10	Allentown, PA	686,688					NextWave Personal	$18,209	Comcast PCS Comm	$2,010	AT&T Wireless PCS I	$1,933	Northcoast Operating	$529
1	43	Binghamton, NY	356,645					21st Century Telesis	$6,902	AT&T Wireless PCS I	$109	AT&T Wireless PCS I	$75	Northcoast Operating	$60
1	63	Burlington, VT	369,128					Personal Communica	$8,721	Devon Mobile Comm	$1,462	AT&T Wireless PCS I	$1,421	Vtel Wireless, Inc	$2,308
1	127	Elmira, NY	315,038					Personal Communica	$4,163	AT&T Wireless PCS I	$67	AT&T Wireless PCS I	$32	Devon Mobile Comm	$74
1	164	Glens Falls, NY	118,539					WIRELESS VENTUR	$1,650	AT&T Wireless PCS I	$85	ACC PCS, Inc	$257	21st Century Bidding	$522
1	184	Hartford, CT	1,123,678					Fortunet Wireless Co	$51,322	AT&T Wireless PCS I	$2,674	AT&T Wireless PCS I	$2,361	Northcoast Operating	$6,996
1	208	Ithaca, NY	94,097					21st Century Telesis	$2,325	Leong, Harvey	$108	AT&T Wireless PCS I	$119	Devon Mobile Comm	$132
1	318	New Haven, CT	978,311					NextWave Personal	$41,888	AT&T Wireless PCS I	$1,186	AT&T Wireless PCS I	$1,089	Northcoast Operating	$1,835
1	319	New London, CT	357,482					NextWave Personal	$11,273	AT&T Wireless PCS I	$215	AT&T Wireless PCS I	$287	Northcoast Operating	$701
1	321	New York, NY	18,050,615					NextWave Personal	$994,135	OPCSE-Galloway Co	$50,700	AT&T Wireless PCS I	$58,800	Northcoast Operating	$75,240
1	333	Oneonta, NY	107,742					21st Century Telesis	$1,955	AT&T Wireless PCS I	$23	AT&T Wireless PCS I	$55	Delaware PCS Limite	$86
1	352	Plattsburgh, NY	123,121					WIRELESS VENTUR	$1,283	AT&T Wireless PCS I	$73	AT&T Wireless PCS I	$85	21st Century Bidding	$114
1	361	Poughkeepsie, NY	424,766					NextWave Personal	$13,583	AT&T Wireless PCS I	$1,084	AT&T Wireless PCS I	$1,021	Northcoast Operating	$1,477
1	388	Rutland, VT	97,987					Personal Communica	$2,850	Devon Mobile Comm	$338	AT&T Wireless PCS I	$255	Vtel Wireless, Inc	$506
1	412	Scranton, PA	678,410					NextWave Personal	$15,911	AT&T Wireless PCS I	$354	AT&T Wireless PCS I	$347	21st Century Bidding	$561
1	435	Stroudsburg, PA	95,709					MFRI Inc.	$1,629	Northcoast Operating	$81	AT&T Wireless PCS I	$80	MFRI Inc	$140
1	438	Syracuse, NY	791,140					21st Century Telesis	$16,914	AT&T Wireless PCS I	$264	AT&T Wireless PCS I	$245	Northcoast Operating	$359
1	453	Utica, NY	316,833					21st Century Telesis	$6,750	AT&T Wireless PCS I	$131	AT&T Wireless PCS I	$96	Holland Wireless, L L	$97
1	463	Watertown, NY	296,253					21st Century Telesis	$3,647	AT&T Wireless PCS I	$63	AT&T Wireless PCS I	$30	Sea Breeze Partners	$23
1		New York	26,410,597	Omnipoint PCS Entre	$347,518	WirelessCo, L P	$442,712								
2	28	Bakersfield, CA	543,477					PCS 2000, L P	$26,942	AT&T Wireless PCS I	$4,302	Rivgam Communicat	$3,730	Alpine PCS, Inc	$5,321
2	124	El Centro, CA	109,303					CH PCS, Inc.	$5,363	NextWave Power Par	$88	AT&T Wireless PCS I	$88	Integrated Communic	$127
2	245	Las Vegas, NV	857,856					DCR PCS, Inc.	$57,119	AT&T Wireless PCS I	$3,049	Rivgam Communicat	$4,846	NextWave Power Par	$5,512
2	262	Los Angeles, CA	14,549,810					NextWave Personal	$663,548	AT&T Wireless PCS I	$37,510	Rivgam Communicat	$31,910	Aer Force Communic	$4,474
2	402	San Diego, CA	2,498,016					NextWave Personal	$123,084	AT&T Wireless PCS I	$8,635	Rivgam Communicat	$8,687	Central Oregon Cellul	$11,462
2	405	San Luis Obispo, CA	217,162					Alpine PCS, Inc	$9,891	Entertainment Unlimit	$838	AT&T Wireless PCS I	$811	Entertainment Unlimit	$858
2	406	Santa Barbara, CA	369,608					Alpine PCS, Inc	$19,201	Entertainment Unlimit	$2,210	AT&T Wireless PCS I	$2,214	Aer Force Communic	$2,209
2		Los Angeles-San Di	19,145,232	Cox Cable Communi	$251,919	Pacific Telesis Mobile	$493,500								
3	39	Benton Harbor, MI	161,378					R & S PCS, Inc.	$4,206	SprintCom, Inc.	$329	AT&T Wireless PCS I	$260	OPCSE-Galloway Co	$160
3	46	Bloomington, IL	215,795					DCR PCS, Inc.	$5,391	SprintCom, Inc.	$183	McLeod, Inc	$274	BRK Wireless Compa	$668
3	71	Champaign, IL	222,312					DCR PCS, Inc	$6,065	SprintCom, Inc.	$205	McLeod, Inc	$305	BRK Wireless Compa	$455
3	78	Chicago, IL	8,182,076					DCR PCS, Inc.	$461,009	SprintCom, Inc.	$59,976	SprintCom, Inc	$62,741	NextWave Power Par	$23,065
3	103	Danville, IL	114,241					21st Century Telesis	$1,894	SprintCom, Inc	$105	SprintCom, Inc	$91	OPCSE Galloway Co	$10
3	109	Decatur, IL	247,608					DCR PCS, Inc.	$6,143	SprintCom, Inc	$178	McLeod, Inc	$205	BRK Wireless Compa	$75
3	126	Elkhart, IN	235,152					R & S PCS, Inc.	$6,620	SprintCom, Inc	$702	OPCSE-Galloway Co	$552	21st Century Bidding	$304
3	155	Ft Wayne, IN	646,736					Communications Ven	$19,630	SprintCom, Inc	$1,913	FCC		OPCSE-Galloway Co	$1,395
3	161	Galesburg, IL	75,574					BRK WIRELESS CO	$467	SprintCom, Inc.	$49	OPCSE-Galloway Co	$63	CM-PCS Partners	$66
3	213	Jacksonville, IL	70,795					Quantum Communica	$300	SprintCom, Inc.	$58	Western PCS BTA I	$57	BRK Wireless Compa	$82
3	225	Kankakee, IL	127,042					DCR PCS, Inc	$912	SprintCom, Inc.	$114	SprintCom, Inc	$101	NextWave Power Par	$88
3	243	Las Salle, IL	148,331					DCR PCS, Inc.	$1,931	SprintCom, Inc	$140	SprintCom, Inc	$124	BRK Wireless Compa	$58
3	286	Mattoon, IL	62,314					Quantum Communica	$434	SprintCom, Inc.	$145	Consolidated Commu	$77	BRK Wireless Compa	$55
3	294	Michigan City, IN	107,066					DCR PCS, Inc.	$887	SprintCom, Inc	$200	AT&T Wireless PCS I	$191	21st Century Bidding	$160
3	344	Peoria, IL	455,643					R & S PCS, Inc.	$13,511	SprintCom, Inc.	$1,370	McLeod, Inc	$1,704	OPCSE-Galloway Co	$2,021
3	380	Rockford, IL	412,120					DCR PCS, Inc.	$14,433	SprintCom, Inc.	$1,569	McLeod, Inc	$1,948	Northcoast Operating	$3,020
3	424	South Bend, IN	330,821					21st Century Telesis	$13,227	SprintCom, Inc	$982	AT&T Wireless PCS I	$1,020	OPCSE-Galloway Co	$1,318
3	426	Springfield, IL	254,696					DCR PCS, Inc.	$7,651	SprintCom, Inc	$550	McLeod, Inc	$567	BRK Wireless Compa	$968
3		Chicago	12,089,700	AT&T Wireless PCS I	$372,750	PCS PRIMECO, L.P.	$385,051								
4	79	Chico, CA	206,918					GWI PCS, Inc.	$5,510	AT&T Wireless PCS I	$106	AT&T Wireless PCS I	$178	Point Enterprises, Inc	$1[illegible]
4	134	Eureka, CA	142,578					PCS 2000, L.P.	$1,181	Triad Cellular Corpor	$42	AT&T Wireless PCS I	$33	Polycell Communicati	$[illegible]
4	157	Fresno, CA	755,580					PCS 2000, L.P.	$47,027	AT&T Wireless PCS I	$1,011	AT&T Wireless PCS I	$1,172	Central Wireless Part	$2,7[illegible]
4	291	Merced, CA	192,705					PCS 2000, L.P.	$3,533	AT&T Wireless PCS I	$283	AT&T Wireless PCS I	$337	Central Wireless Part	$358
4	303	Modesto, CA	418,978					PCS 2000, L.P.	$12,320	AT&T Wireless PCS I	$759	West Coast PCS LLC	$755	Central Wireless Part	$1,030
4	371	Redding, CA	253,255					PCS 2000, L.P.	$4,501	AT&T Wireless PCS I	$102	Triad Cellular Corpor	$151	Point Enterprises, Inc	$96
4	372	Reno, NV	439,279					PCS 2000, L.P.	$27,803	AT&T Wireless PCS I	$835	Rivgam Communicat	$1,704	Aer Force Communic	$1,787
4	389	Sacramento, CA	1,656,581					GWI PCS, Inc.	$108,833	AT&T Wireless PCS I	$5,361	West Coast PCS LLC	$5,642	NextWave Power Par	$7,187
4	397	Salinas, CA	355,660					GWI PCS, Inc.	$16,472	Entertainment Unlimit	$1,348	AT&T Wireless PCS I	$1,317	Alpine PCS, Inc	$1,507
4	404	San Francisco, CA	6,420,984					GWI PCS, Inc.	$403,256	AT&T Wireless PCS I	$13,655	Western PCS BTA I	$10,737	NextWave Power Par	$4,334

Licenses holders are based upon the winning bidder at the end of the auction.
This list does not reflect any change in winners' name or ownership (i.e. transfers and/or sales)

Broadband PCS Auction Winners

		Geographic Lic. Scheme Spectrum per License Block		MTA 30 A		MTA 30 B		BTA 30 C		BTA 10 D		BTA 10 E		BTA 10 F	
MTA	BTA	Market Name	Population	Winning Bidder	Net Bid (thous.)	Winning Bidder	Net Bid (thous.)	Winning Bidder	Net Bid (thous.)	Winning Bidder	Net Bid (thous.)	Winning Bidder	Net Bid (thous.)	Winning Bidder	Net Bid (thous.)
4	434	Stockton, CA	512,626					GWI PCS, Inc.	$24,903	AT&T Wireless PCS I	$1,859	West Coast PCS LLC	$2,446	Central Wireless Part	$4,659
4	458	Visalia, CA	413,390					PCS 2000, L.P.	$9,371	AT&T Wireless PCS I	$664	Entertainment Unlimit	$608	Central Wireless Part	$710
4	485	Yuba City, CA	122,643					GWI PCS, Inc.	$2,568	AT&T Wireless PCS I	$61	West Coast PCS LLC	$139	Integrated Communic	$55
4		San Francisco-Oakl	11,891,177	WirelessCo, L.P.	$206,500	Pacific Telesis Mobile	$202,150								
5	5	Adrian, MI	91,476					DCR PCS, Inc.	$701	Century Personal Acc	$28	OPCSE-Galloway Co	$36	OPCSE-Galloway Co	$15
5	11	Alpena, MI	63,429					Northern Michigan P	$476	AT&T Wireless PCS I	$13	Lite-Wave Communic	$13	Alpine PCS, Inc.	$23
5	33	Battle Creek, MI	227,541					DCR PCS, Inc.	$6,284	Century Personal Acc	$232	Message Express Co	$253	OPCSE-Galloway Co	$254
5	112	Detroit, MI	4,705,164					DCR PCS, Inc.	$172,739	NextWave Power Par	$3,815	OPCSE-Galloway Co	$3,856	OPCSE-Galloway Co	$6,375
5	143	Findlay, OH	147,623					Miccom Associates,	$1,998	OPCSE-Galloway Co	$33	OPCSE-Galloway Co	$32	Northcoast Operating	$23
5	145	Flint, MI	500,229					DCR PCS, Inc.	$8,615	Century Personal Acc	$305	OPCSE-Galloway Co	$202	OPCSE-Galloway Co	$378
5	169	Grand Rapids, MI	916,080					DCR PCS, Inc.	$30,268	Century Personal Acc	$925	OPCSE-Galloway Co	$860	OPCSE-Galloway Co	$848
5	209	Jackson, MI	193,187					DCR PCS, Inc.	$1,974	Century Personal Acc	$60	OPCSE-Galloway Co	$96	OPCSE-Galloway Co	$29
5	223	Kalamazoo, MI	352,394					DCR PCS, Inc.	$8,403	Century Personal Acc	$1,481	Message Express Co	$1,411	Northcoast Operating	$1,372
5	241	Lansing, MI	469,698					Anishnabe Communi	$16,703	Century Personal Acc	$348	OPCSE-Galloway Co	$152	OPCSE-Galloway Co	$446
5	255	Lima, OH	249,734					DCR PCS, Inc.	$3,426	OPCSE-Galloway Co	$143	OPCSE-Galloway Co	$103	Telephone Service C	$146
5	307	Mt Pleasant, MI	118,558					Anishnabe Communi	$919	Century Personal Acc	$85	OPCSE-Galloway Co	$72	Lite-Wave Communic	$77
5	310	Muskegon, MI	206,974					DCR PCS, Inc.	$2,659	Century Personal Acc	$65	OPCSE-Galloway Co	$44	Lite-Wave Communic	$63
5	345	Petoskey, MI	85,863					NOVERR PUBLISHI	$528	ACC-PCS, Inc.	$63	Lite-Wave Communic	$63	Alpine PCS, Inc.	$67
5	390	Saginaw, MI	615,364					Anishnabe Communi	$12,139	Century Personal Acc	$439	OPCSE-Galloway Co	$250	Alpine PCS, Inc.	$372
5	409	Sault Ste. Marie, MI	51,041					Northern Michigan P	$929	MVI Corp.	$22	MVI Corp.	$27	Alpine PCS, Inc.	$26
5	444	Toledo, OH	782,184					DCR PCS, Inc.	$18,307	OPCSE-Galloway Co	$370	Northcoast Operating	$476	OPCSE-Galloway Co	$1,136
5	446	Traverse City, MI	204,600					NOVERR PUBLISHI	$3,650	Century Personal Acc	$473	Alpine PCS, Inc.	$358	Lite-Wave Communic	$224
5		Detroit	10,001,009	AT&T Wireless PCS I	$81,177	WirelessCo, L.P.	$86,107								
6	16	Anderson, SC	305,120					Carolina PCS I Limite	$8,696	SprintCom, Inc.	$1,295	ALLTEL Mobile Com	$1,362	Public Service PCS, I	$291
6	20	Asheville, NC	510,055					NextWave Personal	$7,727	SprintCom, Inc.	$971	ALLTEL Mobile Com	$930	Urban Communicator	$560
6	62	Burlington, NC	108,213					Urban Communicator	$1,670	SprintCom, Inc.	$66	ALLTEL Mobile Com	$68	The Phoenix Wireles	$94
6	72	Charleston, SC	624,369					Carolina PCS I Limite	$25,025	SprintCom, Inc.	$3,374	ALLTEL Mobile Com	$3,573	Urban Communicator	$617
6	74	Charlotte, NC	1,671,037					NextWave Personal	$83,651	SprintCom, Inc.	$5,729	ALLTEL Mobile Com	$5,514	AirGate Wireless, L.L	$7,587
6	91	Columbia, SC	568,754					Carolina PCS I Limite	$22,112	SprintCom, Inc.	$2,842	ALLTEL Mobile Com	$3,054	NextWave Power Par	$1,485
6	141	Fayetteville, NC	571,328					Urban Communicator	$9,845	SprintCom, Inc.	$1,048	ALLTEL Mobile Com	$1,137	Nor[illegible]ast Operating	$385
6	147	Florence, SC	239,208					Carolina PCS I Limite	$3,295	SprintCom, Inc.	$991	ALLTEL Mobile Com	$1,000	Urban Communicator	$162
6	165	Goldsboro, NC	217,319					Urban Communicator	$1,820	SprintCom, Inc.	$197	ALLTEL Mobile Com	$200	OPCSE-Galloway Co	$50
6	174	Greensboro, NC	1,241,349					NextWave Personal	$49,679	SprintCom, Inc.	$6,828	ALLTEL Mobile Com	$6,827	AirGate Wireless, L.L	$6,908
6	176	Greenville, NC	218,937					Urban Communicator	$1,925	SprintCom, Inc.	$269	ALLTEL Mobile Com	$251	The Phoenix Wireles	$75
6	177	Greenville, SC	788,212					Carolina PCS I Limite	$24,800	SprintCom, Inc.	$3,708	ALLTEL Mobile Com	$4,003	NextWave Power Par	$1,825
6	178	Greenwood, SC	68,436					Carolina PCS I Limite	$566	SprintCom, Inc.	$156	ALLTEL Mobile Com	$157	AirGate Wireless, L.L	$77
6	189	Hickory, NC	292,409					NextWave Personal	$3,529	SprintCom, Inc.	$383	ALLTEL Mobile Com	$391	AirGate Wireless, L.L	$109
6	214	Jacksonville, NC	149,838					Urban Communicator	$2,288	SprintCom, Inc.	$136	ALLTEL Mobile Com	$171	ComScape Telecom	$23
6	312	Myrtle Beach, SC	144,053					Carolina PCS I Limite	$5,528	SprintCom, Inc.	$498	ALLTEL Mobile Com	$486	Urban Communicator	$656
6	316	New Bern, NC	154,955					Urban Communicator	$2,183	SprintCom, Inc.	$158	ALLTEL Mobile Com	$141	ComScape Telecom	$25
6	335	Orangeburg, SC	114,458					Carolina PCS I Limite	$1,144	SprintCom, Inc.	$198	ALLTEL Mobile Com	$208	Urban Communicator	$100
6	368	Raleigh, NC	1,089,423					Urban Communicator	$46,949	SprintCom, Inc.	$2,887	ALLTEL Mobile Com	$2,913	ComScape Telecom	$3,020
6	377	Roanoke Rapids, N	76,314					Urban Communicator	$642	SprintCom, Inc.	$106	ALLTEL Mobile Com	$117	The Phoenix Wireles	$172
6	382	Rocky Mount, NC	199,296					Urban Communicator	$1,644	SprintCom, Inc.	$181	ALLTEL Mobile Com	$156	The Phoenix Wireles	$119
6	436	Sumter, SC	149,524					Carolina PCS I Limite	$1,495	SprintCom, Inc.	$374	ALLTEL Mobile Com	$389	Urban Communicator	$101
6	478	Wilmington, NC	249,711					Urban Communicator	$5,657	SprintCom, Inc.	$353	ALLTEL Mobile Com	$361	ComScape Telecom	$188
6		Charlotte-Greensbor	9,752,317	AT&T Wireless PCS I	$66,616	BellSouth Personal C	$70,907								
7	3	Abilene, TX	253,174					Poka Lambro PCS, In	$4,025	Western PCS BTA I	$536	Triad Cellular Corpor	$450	Mercury PCS II, LLC	$134
7	13	Amarillo, TX	380,341					Omnipoint PCS Entre	$7,253	Western PCS BTA I	$1,308	Triad Cellular Corpor	$1,464	High Plains Wireless	$1,863
7	27	Austin, TX	899,361					NextWave Personal	$49,193	Western PCS BTA I	$2,114	AT&T Wireless PCS I	$2,536	Poka Lambro PCS, In	$1,739
7	40	Big Spring, TX	34,589					Poka Lambro PCS, In	$651	Western PCS BTA I	$59	AT&T Wireless PCS I	$62	Mercury PCS II, LLC	$57
7	57	Brownwood, TX	57,684					Rosas, Inc.	$977	Western PCS BTA I	$194	AT&T Wireless PCS I	$192	Poka Lambro PCS, In	$211
7	87	Clovis, NM	71,024					Poka Lambro/PVT WI	$375	Triad Cellular Corpor	$108	Western PCS BTA I	$121	Mercury PCS II, LLC	$113
7	101	Dallas, TX	4,329,924					DCR PCS, Inc.	$291,023	AT&T Wireless PCS I	$25,895	AT&T Wireless PCS I	$27,060	NextWave Power Par	$16,005
7	191	Hobbs, NM	55,765					Poka Lambro/PVT WI	$446	Western PCS BTA I	$70	Mercury PCS II LLC	$73	Poka Lambro PCS, In	$76
7	260	Longview, TX	292,659					DCR PCS, Inc	$4,059	Southwestern Bell M	$582	AT&T Wireless PCS I	$517	Mercury Mobility, L.L	$446
7	264	Lubbock, TX	392,901					Poka Lambro PCS, In	$4,385	High Plains Wireless	$2,167	Triad Cellular Corpor	$2,443	Mercury PCS II, LLC	$1,745

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